Learning to Fly: The Wright Brother's Adventure			
2006 Science and Technology/Engineering			
Curriculum Frameworks			
Massachusetts Science and Technology/Engineering			
Grades 9-12			
Activity/Lesson	**State**	**Standards**	
The Society	MA	SCI.9-12.C.II.SIS4.4	Construct a reasoned argument and respond appropriately to critical comments and questions.
Wright Brothers: 1900 Glider	MA	SCI.9-12.E.II.SIS2.7	Follow safety guidelines.
Wright Brothers: 1900 Glider	MA	SCI.9-12.E.II.SIS4.3	Explain diagrams and charts that represent relationships of variables.
Wright Brothers: 1900 Glider	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
Wright Brothers: 1900 Glider	MA	SCI.9-12.T.I.4.A.4.3	Explain how environmental conditions such as wind, solar angle, and temperature influence the design of buildings.
Wright Brothers: 1900 Glider	MA	SCI.9-12.T.II.1.3.a	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Brainstorm possible solutions
Wright Brothers: 1900 Glider	MA	SCI.9-12.T.II.1.3.d	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem.: efine the possible solutions
Wright Brothers: 1900 Glider	MA	SCI.9-12.T.II.1.4.a	Determine which solution(s) best meet(s) the original requirements
Wright Brothers: 1901 Glider	MA	SCI.9-12.P.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)

Wright Brothers: 1901 Glider	MA	SCI.9-12.T.I.1.A.1.2	Understand that the engineering design process is used in the solution of problems and the advancement of society. Identify and explain examples of technologies, objects, and processes that have been modified to advance society.
Wright Brothers: 1901 Glider	MA	SCI.9-12.T.I.1.A.1.3	Produce and analyze multi-view drawings (orthographic projections) and pictorial (isometric, oblique, perspective) drawings using various techniques.
Wright Brothers: 1901 Glider	MA	SCI.9-12.T.I.1.A.1.4	Interpret and apply scale and proportion to orthographic projections and pictorial drawings, such as, ¼" = 1'0", 1 cm = 1 m.
Wright Brothers: 1901 Glider	MA	SCI.9-12.T.I.1.A.1.5	Interpret plans, diagrams, and working drawings in the construction of prototypes or models.
Wright Brothers: 1901 Glider	MA	SCI.9-12.T.I.4.A.4.3	Explain how environmental conditions such as wind, solar angle, and temperature influence the design of buildings.
Wright Brothers: 1901 Glider	MA	SCI.9-12.T.I.7.A.7.3	Describe the advantages of using robotics in the automation of manufacturing processes, such as, increased production, improved quality, and safety.
Wright Brothers: 1902 Glider	MA	SCI.9-12.E.II.SIS2.7	Follow safety guidelines.
Wright Brothers: 1902 Glider	MA	SCI.9-12.E.II.SIS4.3	Explain diagrams and charts that represent relationships of variables.
Wright Brothers: 1902 Glider	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
Wright Brothers: 1903 Flyer	MA	SCI.9-12.E.II.SIS2.7	Follow safety guidelines.
Wright Brothers: 1903 Flyer	MA	SCI.9-12.E.II.SIS4.3	Explain diagrams and charts that represent relationships of variables.
Wright Brothers: 1903 Flyer	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
Wright Brothers: 1903 Flyer	MA	SCI.9-12.B.II.SIS2.7	Follow safety guidelines.
Wright Brothers: 1903 Flyer	MA	SCI.9-12.B.II.SIS4.3	Explain diagrams and charts that represent relationships of variables.
1900: Kitty Hawks	MA	SCI.9-12.E.II.SIS4.3	Explain diagrams and charts that represent relationships of variables.
1900: Kitty Hawks	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
1901: The First Improvement	MA	SCI.9-12.E.II.SIS2.3	Identify independent and dependent variables.
1901: The First Improvement	MA	SCI.9-12.E.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.

1901: The First Improvement	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
1901: The First Improvement	MA	SCI.9-12.E.III.9.2	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); force (N); speed (m/s); acceleration (m•s-2); and frequency (Hz).
1901: The First Improvement	MA	SCI.9-12.B.II.SIS2.3	Identify independent and dependent variables.
1901: The First Improvement	MA	SCI.9-12.B.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1901: The First Improvement	MA	SCI.9-12.B.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1901: The First Improvement	MA	SCI.9-12.C.II.SIS2.3	Identify independent and dependent variables.
1901: The First Improvement	MA	SCI.9-12.C.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1901: The First Improvement	MA	SCI.9-12.C.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1901: The First Improvement	MA	SCI.9-12.P.I.1.A.1.1	Compare and contrast vector quantities (such as, displacement, velocity, acceleration, force, and linear momentum) and scalar quantities (such as, distance, speed, energy, mass, and work).
1901: The First Improvement	MA	SCI.9-12.P.I.1.A.1.5	Use a free-body force diagram to show forces acting on a system consisting of a pair of interacting objects. For a diagram with only co-linear forces, determine the net force acting on a system and between the objects.
1901: The First Improvement	MA	SCI.9-12.P.I.1.A.1.6	Distinguish qualitatively between static and kinetic friction, and describe their effects on the motion of objects.
1901: The First Improvement	MA	SCI.9-12.P.I.1.A.1.8	Describe conceptually the forces involved in circular motion.
1901: The First Improvement	MA	SCI.9-12.P.II.SIS2.3	Identify independent and dependent variables.
1901: The First Improvement	MA	SCI.9-12.P.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1901: The First Improvement	MA	SCI.9-12.P.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)

1901: The First Improvement	MA	SCI.9-12.T.I.1.A.1.1	Identify and explain the steps of the engineering design process. The design process steps are identify the problem; research the problem; develop possible solutions; select the best possible solution(s); construct prototypes and/or models; test and evaluate; communicate the solutions; and redesign.
1901: The First Improvement	MA	SCI.9-12.T.I.1.A.1.5	Interpret plans, diagrams, and working drawings in the construction of prototypes or models.
1901: The First Improvement	MA	SCI.9-12.T.I.2.A.2.2	Distinguish among tension, compression, shear, and torsion, and explain how they relate to the selection of materials in structures.
1901: The First Improvement	MA	SCI.9-12.T.I.2.A.2.4	Calculate the resultant force(s) for a combination of live loads and dead loads.
1901: The First Improvement	MA	SCI.9-12.T.I.3.A.3.3	Calculate and describe the ability of a hydraulic system to multiply distance, multiply force, and effect directional change.
1901: The First Improvement	MA	SCI.9-12.T.I.4.A.4.3	Explain how environmental conditions such as wind, solar angle, and temperature influence the design of buildings.
1901: The First Improvement	MA	SCI.9-12.T.II.1.5.a	Model the selected solution(s) in two and three dimensions
1901: The First Improvement	MA	SCI.9-12.T.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1901: The First Improvement	MA	SCI.9-12.T.III.10.3	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); power (W); electric current (A); electric potential difference/voltage (V); and electric resistance (omega)
New Data	MA	SCI.9-12.E.II.SIS1.2	Pose questions and form hypotheses based on personal observations, scientific articles, experiments, and knowledge.
New Data	MA	SCI.9-12.E.I.1.A.1.3	Explain how the transfer of energy through radiation, conduction, and convection contributes to global atmospheric processes, such as storms, winds, and currents.
New Data	MA	SCI.9-12.E.I.1.A.1.4	Provide examples of how the unequal heating of Earth and the Coriolis effect influence global circulation patterns, and show how they impact Massachusetts weather and climate (e.g., global winds, convection cells, land/sea breezes, mountain/valley breezes).

New Data	MA	SCI.9-12.E.I.1.A.1.6	Describe the various conditions associated with frontal boundaries and cyclonic storms (e.g., thunderstorms, winter storms [nor'easters], hurricanes, tornadoes) and their impact on human affairs, including storm preparations.
New Data	MA	SCI.9-12.E.I.1.A.1.7	Explain the dynamics of oceanic currents, including upwelling, deep-water currents, the Labrador Current and the Gulf Stream, and their relationship to global circulation within the marine environment and climate.
New Data	MA	SCI.9-12.E.I.1.A.1.8	Read, interpret, and analyze a combination of ground-based observations, satellite data, and computer models to demonstrate Earth systems and their interconnections.
New Data	MA	SCI.9-12.E.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.
New Data	MA	SCI.9-12.E.II.SIS3.3	Use results of an experiment to develop a conclusion to an investigation that addresses the initial questions and supports or refutes the stated hypothesis.
New Data	MA	SCI.9-12.E.II.SIS3.4	State questions raised by an experiment that may require further investigation.
New Data	MA	SCI.9-12.E.II.SIS4.2	Review information, explain statistical analysis, and summarize data collected and analyzed as the result of an investigation.
New Data	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
New Data	MA	SCI.9-12.B.II.SIS1.2	Pose questions and form hypotheses based on personal observations, scientific articles, experiments, and knowledge.
New Data	MA	SCI.9-12.B.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.
New Data	MA	SCI.9-12.B.II.SIS3.4	Use results of an experiment to develop a conclusion to an investigation that addresses the initial questions and supports or refutes the stated hypothesis.
New Data	MA	SCI.9-12.B.II.SIS3.5	State questions raised by an experiment that may require further investigation.
New Data	MA	SCI.9-12.B.II.SIS4.2	Review information, explain statistical analysis, and summarize data collected and analyzed from an investigation.
New Data	MA	SCI.9-12.B.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
New Data	MA	SCI.9-12.C.II.SIS1.2	Pose questions and form hypotheses based on personal observations, scientific articles, experiments, and knowledge.
New Data	MA	SCI.9-12.C.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.

New Data	MA	SCI.9-12.C.II.SIS3.3	Use results of an experiment to develop a conclusion to an investigation that addresses the initial questions and supports or refutes the stated hypothesis.
New Data	MA	SCI.9-12.C.II.SIS3.4	State questions raised by an experiment that may require further investigation.
New Data	MA	SCI.9-12.C.II.SIS4.2	Review information, explain statistical analysis, and summarize data collected and analyzed from an investigation.
New Data	MA	SCI.9-12.C.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
New Data	MA	SCI.9-12.P.I.1.A.1.3	Create and interpret graphs of 1-dimensional motion, such as position vs. time, distance vs. time, speed vs. time, velocity vs. time, and acceleration vs. time where acceleration is constant.
New Data	MA	SCI.9-12.P.II.SIS1.2	Pose questions and form hypotheses based on personal observations, scientific articles, experiments, and knowledge.
New Data	MA	SCI.9-12.P.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.
New Data	MA	SCI.9-12.P.II.SIS3.3	Use results of an experiment to develop a conclusion to an investigation that addresses the initial questions and supports or refutes the stated hypothesis.
New Data	MA	SCI.9-12.P.II.SIS3.4	State questions raised by an experiment that may require further investigation.
New Data	MA	SCI.9-12.P.II.SIS4.2	Review information, explain statistical analysis, and summarize data collected and analyzed from an investigation.
New Data	MA	SCI.9-12.T.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1902: Success at Last	MA	SCI.9-12.E.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1902: Success at Last	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
1902: Success at Last	MA	SCI.9-12.E.III.9.1	Determine percent error from experimental and accepted values.
1902: Success at Last	MA	SCI.9-12.B.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1902: Success at Last	MA	SCI.9-12.B.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1902: Success at Last	MA	SCI.9-12.B.III.9.2	Determine percent error from experimental and accepted values.

1902: Success at Last	MA	SCI.9-12.C.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1902: Success at Last	MA	SCI.9-12.C.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1902: Success at Last	MA	SCI.9-12.C.III.9.2	Determine percent error from experimental and accepted values.
1902: Success at Last	MA	SCI.9-12.P.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1902: Success at Last	MA	SCI.9-12.P.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1902: Success at Last	MA	SCI.9-12.P.III.8.2	Determine percent error from experimental and accepted values.
1902: Success at Last	MA	SCI.9-12.P.III.8.3	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); force (N); speed (m/s); acceleration (m•s-2); frequency (Hz); work and energy (J); power (W); momentum (kg•m/s); electric current (A); electric potential difference/voltage (V); and electric resistance (omega).
1902: Success at Last	MA	SCI.9-12.T.I.1.A.1.1	Identify and explain the steps of the engineering design process. The design process steps are identify the problem; research the problem; develop possible solutions; select the best possible solution(s); construct prototypes and/or models; test and evaluate; communicate the solutions; and redesign.
1902: Success at Last	MA	SCI.9-12.T.I.1.A.1.2	Understand that the engineering design process is used in the solution of problems and the advancement of society. Identify and explain examples of technologies, objects, and processes that have been modified to advance society.
1902: Success at Last	MA	SCI.9-12.T.I.1.A.1.3	Produce and analyze multi-view drawings (orthographic projections) and pictorial (isometric, oblique, perspective) drawings using various techniques.
1902: Success at Last	MA	SCI.9-12.T.I.1.A.1.4	Interpret and apply scale and proportion to orthographic projections and pictorial drawings, such as, ¼” = 1’0”, 1 cm = 1 m.
1902: Success at Last	MA	SCI.9-12.T.I.1.A.1.5	Interpret plans, diagrams, and working drawings in the construction of prototypes or models.
1902: Success at Last	MA	SCI.9-12.T.I.2.A.2.6	Recognize the purpose of zoning laws and building codes in the design and use of structures.

1902: Success at Last	MA	SCI.9-12.T.I.3.A.3.3	Calculate and describe the ability of a hydraulic system to multiply distance, multiply force, and effect directional change.
1902: Success at Last	MA	SCI.9-12.T.I.4.A.4.2	Give examples of how conduction, convection, and radiation are considered in the selection of materials for buildings and in the design of a heating system.
1902: Success at Last	MA	SCI.9-12.T.I.4.A.4.3	Explain how environmental conditions such as wind, solar angle, and temperature influence the design of buildings.
1902: Success at Last	MA	SCI.9-12.T.II.1.1.1	Identify the need or problem
1902: Success at Last	MA	SCI.9-12.T.II.1.2.a	Examine current state of the issue and current solutions
1902: Success at Last	MA	SCI.9-12.T.II.1.2.b	Explore other options via the Internet, library, interviews, etc.
1902: Success at Last	MA	SCI.9-12.T.II.1.3.a	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Brainstorm possible solutions
1902: Success at Last	MA	SCI.9-12.T.II.1.3.b	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Draw on mathematics and science

1902: Success at Last	MA	SCI.9-12.T.II.1.3.c	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Articulate the possible solutions in two and three dimensions
1902: Success at Last	MA	SCI.9-12.T.II.1.4.a	Determine which solution(s) best meet(s) the original requirements
1902: Success at Last	MA	SCI.9-12.T.II.1.5.a	Model the selected solution(s) in two and three dimensions
1902: Success at Last	MA	SCI.9-12.T.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1902: Success at Last	MA	SCI.9-12.T.III.10.2	Determine percent error from experimental and accepted values.
1902: Success at Last	MA	SCI.9-12.T.III.10.3	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); power (W); electric current (A); electric potential difference/voltage (V); and electric resistance (omega)
1903: Powered Flight	MA	SCI.9-12.E.III.1	Construct and use tables and graphs to interpret data sets.
1903: Powered Flight	MA	SCI.9-12.E.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.
1903: Powered Flight	MA	SCI.9-12.E.II.SIS3.5.a	Represent data and relationships between variables in charts and graphs.
1903: Powered Flight	MA	SCI.9-12.E.II.SIS3.5.b	Use appropriate technology (such as graphing software, etc.) and other tools.
1903: Powered Flight	MA	SCI.9-12.E.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1903: Powered Flight	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
1903: Powered Flight	MA	SCI.9-12.E.III.9.2	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); force (N); speed (m/s); acceleration (m•s-2); and frequency (Hz).
1903: Powered Flight	MA	SCI.9-12.B.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.

1903: Powered Flight	MA	SCI.9-12.B.II.SIS3.1.a	Represent data and relationships between variables in charts and graphs.
1903: Powered Flight	MA	SCI.9-12.B.II.SIS3.1.b	Use appropriate technology (such as graphing software, etc.) and other tools.
1903: Powered Flight	MA	SCI.9-12.B.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1903: Powered Flight	MA	SCI.9-12.B.III.1	Construct and use tables and graphs to interpret data sets.
1903: Powered Flight	MA	SCI.9-12.B.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1903: Powered Flight	MA	SCI.9-12.C.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.
1903: Powered Flight	MA	SCI.9-12.C.II.SIS3.A.a	Represent data and relationships between variables in charts and graphs.
1903: Powered Flight	MA	SCI.9-12.C.II.SIS3.A.b	Use appropriate technology (such as graphing software, etc.) and other tools.
1903: Powered Flight	MA	SCI.9-12.C.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1903: Powered Flight	MA	SCI.9-12.C.III.1	Construct and use tables and graphs to interpret data sets.
1903: Powered Flight	MA	SCI.9-12.C.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1903: Powered Flight	MA	SCI.9-12.P.I.1.A.1.1	Compare and contrast vector quantities (such as, displacement, velocity, acceleration, force, and linear momentum) and scalar quantities (such as, distance, speed, energy, mass, and work).
1903: Powered Flight	MA	SCI.9-12.P.I.1.A.1.2	Distinguish between displacement, distance, velocity, speed, and acceleration. Solve problems involving displacement, distance, velocity, speed, and constant acceleration.
1903: Powered Flight	MA	SCI.9-12.P.I.1.A.1.3	Create and interpret graphs of 1-dimensional motion, such as position vs. time, distance vs. time, speed vs. time, velocity vs. time, and acceleration vs. time where acceleration is constant.
1903: Powered Flight	MA	SCI.9-12.P.II.SIS2.2	Select required materials, equipment, and conditions for conducting an experiment.
1903: Powered Flight	MA	SCI.9-12.P.II.SIS3.A.a	Represent data and relationships between variables in charts and graphs.

1903: Powered Flight	MA	SCI.9-12.P.II.SIS3.A.b	Use appropriate technology (such as graphing software, etc.) and other tools.
1903: Powered Flight	MA	SCI.9-12.P.II.SIS4.6	Use and refine scientific models that simulate physical processes or phenomena.
1903: Powered Flight	MA	SCI.9-12.P.III.1	Construct and use tables and graphs to interpret data sets.
1903: Powered Flight	MA	SCI.9-12.P.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1903: Powered Flight	MA	SCI.9-12.P.III.8.3	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); force (N); speed (m/s); acceleration (m•s-2); frequency (Hz); work and energy (J); power (W); momentum (kg•m/s); electric current (A); electric potential difference/voltage (V); and electric resistance (omega).
1903: Powered Flight	MA	SCI.9-12.T.I.1.A.1.1	Identify and explain the steps of the engineering design process. The design process steps are identify the problem; research the problem; develop possible solutions; select the best possible solution(s); construct prototypes and/or models; test and evaluate; communicate the solutions; and redesign.
1903: Powered Flight	MA	SCI.9-12.T.I.1.A.1.2	Understand that the engineering design process is used in the solution of problems and the advancement of society. Identify and explain examples of technologies, objects, and processes that have been modified to advance society.
1903: Powered Flight	MA	SCI.9-12.T.I.1.A.1.3	Produce and analyze multi-view drawings (orthographic projections) and pictorial (isometric, oblique, perspective) drawings using various techniques.
1903: Powered Flight	MA	SCI.9-12.T.I.1.A.1.4	Interpret and apply scale and proportion to orthographic projections and pictorial drawings, such as, ¼” = 1’0”, 1 cm = 1 m.
1903: Powered Flight	MA	SCI.9-12.T.I.1.A.1.5	Interpret plans, diagrams, and working drawings in the construction of prototypes or models.
1903: Powered Flight	MA	SCI.9-12.T.I.2.A.2.6	Recognize the purpose of zoning laws and building codes in the design and use of structures.
1903: Powered Flight	MA	SCI.9-12.T.I.3.A.3.3	Calculate and describe the ability of a hydraulic system to multiply distance, multiply force, and effect directional change.

1903: Powered Flight	MA	SCI.9-12.T.I.4.A.4.2	Give examples of how conduction, convection, and radiation are considered in the selection of materials for buildings and in the design of a heating system.
1903: Powered Flight	MA	SCI.9-12.T.I.4.A.4.3	Explain how environmental conditions such as wind, solar angle, and temperature influence the design of buildings.
1903: Powered Flight	MA	SCI.9-12.T.II.1.1.1	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Identify the need or problem
1903: Powered Flight	MA	SCI.9-12.T.II.1.2.a	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Examine current state of the issue and current solutions
1903: Powered Flight	MA	SCI.9-12.T.II.1.2.b	Explore other options via the Internet, library, interviews, etc.
1903: Powered Flight	MA	SCI.9-12.T.II.1.3.a	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Brainstorm possible solutions

1903: Powered Flight	MA	SCI.9-12.T.II.1.3.b	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Draw on mathematics and science
1903: Powered Flight	MA	SCI.9-12.T.II.1.3.c	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Articulate the possible solutions in two and three dimensions
1903: Powered Flight	MA	SCI.9-12.T.II.1.3.d	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Refine the possible solutions
1903: Powered Flight	MA	SCI.9-12.T.II.1.4.a	Determine which solution(s) best meet(s) the original requirements
1903: Powered Flight	MA	SCI.9-12.T.II.1.5.a	Model the selected solution(s) in two and three dimensions

1903: Powered Flight	MA	SCI.9-12.T.II.1.6.a	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Does it work?
1903: Powered Flight	MA	SCI.9-12.T.II.1.6.b	Students should be provided opportunities for hands-on experiences to design, build, test, and evaluate (and redesign, if necessary) a prototype or model of their solution to a problem. Students should have access to materials, hand and/or power tools, and other resources necessary to engage in these tasks. Students may also engage in design challenges that provide constraints and specifications to consider as they develop a solution to a problem: Does it meet the original design constraints?
1903: Powered Flight	MA	SCI.9-12.T.III.1	Construct and use tables and graphs to interpret data sets.
1903: Powered Flight	MA	SCI.9-12.T.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1903: Powered Flight	MA	SCI.9-12.T.III.10.3	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); power (W); electric current (A); electric potential difference/voltage (V); and electric resistance (omega)
1904: Improvement in Dayton	MA	SCI.9-12.E.II.SIS2.1	Articulate and explain the major concepts being investigated and the purpose of an investigation.
1904: Improvement in Dayton	MA	SCI.9-12.E.II.SIS2.4	Write procedures that are clear and replicable.
1904: Improvement in Dayton	MA	SCI.9-12.E.II.SIS4.3	Explain diagrams and charts that represent relationships of variables.
1904: Improvement in Dayton	MA	SCI.9-12.E.II.SIS4.5	Use language and vocabulary appropriately, speak clearly and logically, and use appropriate technology (e.g., presentation software) and other tools to present findings.
1904: Improvement in Dayton	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)

1905: Complete a Flight at Last	MA	SCI.9-12.P.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
1905: Complete a Flight at Last	MA	SCI.9-12.T.II.1.2.a	Examine current state of the issue and current solutions
1905: Complete a Flight at Last	MA	SCI.9-12.T.II.1.2.b	Explore other options via the Internet, library, interviews, etc.
1905: Complete a Flight at Last	MA	SCI.9-12.T.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)